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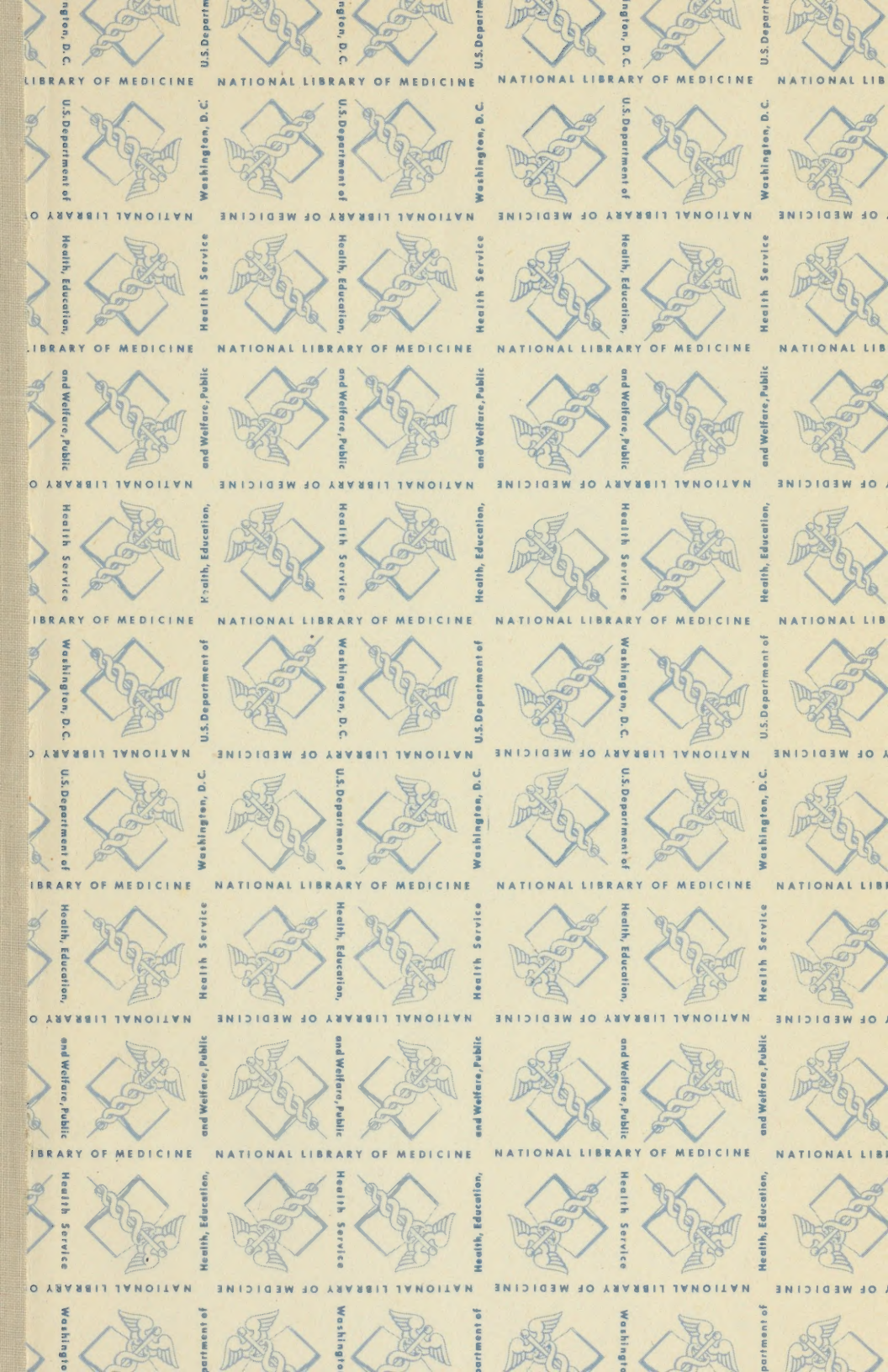
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REPORT No. 7

Survey of General Conditions of Industrial Hygiene in Toronto

By

ASSOCIATE COMMITTEE ON INDUSTRIAL FATIGUE
OF THE RESEARCH COUNCIL



Canada

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PLAN

I. INTRODUCTION

- A. Formation of the Committee.
- B. Object of the Survey.

II. GENERAL REPORT

- A. Scope and Method of the Survey.
- B. Attitude of Industry.
 - I. General.
 - II. Factors which hinder the extension of industrial hygiene.
- C. Conditions Observed
 - I. Hours of Work
 - II. Medical Service in Industry
- III. Sanitation.
- IV. Fatigue.
- V. Occupational Disease.
- VI. Welfare.

III. LOST TIME DUE TO SICKNESS

- A. Scope and Method of the Report
- B. Difficulties Encountered
- C. Statistics and Charts
 - I. Lost time in Benefit Associations.
 - II. Progress made by a Packing Company in reducing lost time from sickness.
- III. Causes of absence in one firm.

IV. CHANGES DURING THE YEAR: PROSPECTS

V. RECOMMENDATIONS

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SURVEY OF GENERAL CONDITIONS OF INDUSTRIAL
HYGIENE IN TORONTO WITH RESULTS OF AN
INVESTIGATION INTO LOST TIME DUE
TO SICKNESS

I. INTRODUCTION

A. FORMATION OF THE COMMITTEE

The Committee on Industrial Fatigue was established by the Honorary Advisory Council for Scientific and Industrial Research in the spring of 1919. The purpose of the committee was in the first place to consider to what extent fatigue is a factor in industry in Canada and to what extent it calls for scientific investigation; in the second place to establish means for research if this should seem desirable.

The committee was constituted under the chairmanship of Dr. J. J. R. Macleod, Department of Physiology, University of Toronto, and composed of Dr. A. B. Macallum, Administrative Chairman of the Honorary Advisory Council, members of the Department of Physiology or Psychology of the various Canadian universities, a representative of Trade and Labour Congress, a representative of women's organizations and social work, and one manufacturer.

B. OBJECT OF THE SURVEY

The committee felt that the first thing to do was to investigate the general conditions of industrial hygiene in some one representative locality. This would make available information both on the probable incidence of fatigue and on the practicability of conducting intensive research into its causes. They directed that in looking for evidence of fatigue special attention be paid to the collection of data on lost time due to sickness since this has a direct bearing on fatigue, is a problem common to every industry and should be capable of investigation from industrial records.

II. GENERAL REPORT

A. SCOPE AND METHOD OF THE SURVEY

From the broad character of the information desired by the committee—namely, general information as to the condition of industrial hygiene in Toronto—it has followed that the survey has been very wide in scope and very general in nature. Throughout the attempt has been to collect such data on working conditions in Toronto as would indicate for the committee's guidance what is the general

attitude of employers to industrial hygiene, and, correlatively, what measures have been taken to promote it. The investigations have been conducted solely by personal visits to the plants and the investigator has been entirely dependent on the courtesy of the managements concerned. He has had accordingly to derive his information largely from the personal statements of managers, physicians, or nurses, supplemented, where possible, by a general and necessarily cursory inspection of premises, etc.

At the beginning it was thought that industrial physicians would afford the best point of contact and that they would act as a channel of communication between the committee and the employer, but this was soon seen to be impracticable. There are very few industrial physicians in Toronto and almost all of these are part time and, with two or three notable exceptions, are employed rather for the treatment of disease when it has occurred than for prevention. From the early days of the investigation therefore firms were approached directly through the manager.

The basis of selection of firms was either that they were representative, or that they were progressive and thought to be interested in industrial hygiene, or that they were likely to have occupational hazards.

Seventy-six plants were visited, these including all the large plants in the community and some of the smaller.

B. ATTITUDE OF INDUSTRY

I. *General.*

On the whole it may be said that there is a widespread recognition of the value of good working conditions, but very little recognition of the fact that "good working conditions" is not a vague and indefinite term but can be accurately determined by science, through knowledge of the laws which govern the human body. Many employers and managers who genuinely desire "to do the best for the employee" do not apparently realize that the decision as to what constitutes "the best" requires expert advice. Thus, in many cases, canteens are established, new systems of lighting installed, or, actually, new works built without the correct relative value being given to the hygienic requirements, as compared with other requirements, in connection with such questions as the type of seat, air space, window arrangement and similar points. Again, other managers are installing various forms of welfare activities—welfare worker, canteen or the like—without any clear purpose in view; some look upon it chiefly as a business proposition which should yield dividends, others feel the need of attracting employees to their works, and others again are actuated simply by the desire to keep abreast of the times.

Broadly it may be said that while there is an interest in the subject of industrial hygiene there is a lack of continuous and organized effort to promote it, and that its full importance as a factor in com-

mercial prosperity is not realized. Most of the "welfare work" and employment management which is being done in Toronto is done too much solely with the object of improving relations between employer and employee and "keeping the man on the job." Welfare work, that is to say, is too often looked upon from its negative side as a means of preventing discontent rather than from its positive side as a means of maintaining health and efficiency.

II. *Factors which Hinder the Extension of Industrial Hygiene*

(a) General Difficulties Connected with a New Movement. —

Some managers feel that the whole subject of industrial hygiene is in an experimental stage and they prefer to conserve their time and money until the advantages are more clearly seen and the most successful line of development found. They do not readily accept the experience of other countries since they feel that this is not applicable to Canada where conditions are very different from those, say, in England, and industry on a much smaller scale than in either England or the States. Further, there is a considerable distrust of statistics and lack of knowledge of how to interpret them. It is probable, too, that the disrepute attached to the efficiency movement has rendered them sceptical of any organized attempt to promote it.

A further difficulty is the conviction which is fairly common that it is useless to improve conditions in the plant while conditions in the home remain unimproved. Managers feel that good lighting, heating, provision for nutrition, etc., in the plant during eight hours of the day will do nothing to reduce lost time from sickness if the same factors are bad in the home and their effects intensified by absence of personal hygiene.

This opinion of the managers raises two very fundamental questions: first, as to whether employees are financially able to maintain satisfactory standards of food, heating, etc.—whether in this sense they are paid a "living wage"—and second, as to the degree of responsibility of the employer for setting the standard of requirements for healthy living. Discussion of these points is beyond the scope of the present report, which is concerned merely with recording the attitude of managers to the general question of industrial hygiene.

Even in the case of a progressive manager convinced of the value of promoting the health of his employees there is an inevitable obstacle in the fact that he is not a free agent. Before, for instance, expending money on the establishment of a medical service he has to justify to his directors outlay which in the nature of the case will not *certainly* yield a return in dividends or *quickly* give tangible results in the way of reduced lost time.

At the same time there is often opposition from the employees themselves, who in some cases have definitely expressed the view that money spent on such things as cafeterias might have been better spent on increased wages. Even where they do not go as far as this there is an evident tendency to misconstrue the motive behind services

established for their benefit. Many managers share the fear expressed by one firm regarding the establishment of a visiting nursing service, "that the fact of the company's nurse interfering with the men's private affairs might for the present at least indispose them towards their employers."

(b) *Particular Difficulties due to Post-war Conditions.*—Apart from such general difficulties which are of course inevitable at the beginning of any new movement, employers felt that owing to the unsettlement following the war last year was an unpropitious time either for launching new schemes, as for instance the establishment of industrial medical service, or for gaining any representative view of conditions. Turnover was universally high, many employers stating that '30 per cent of their staff was floating. Absence also was abnormal, amounting commonly to 5 per cent per day and often running as high as 10 per cent. This, managers attributed to the unaccustomed high rate of wages, which being, they held, out of all proportion to the cost of living, relieved the worker without dependents, especially girls, from the necessity of regular employment. In this connection it must be pointed out that according to official statistics increases in wages have not equalled increases in cost of living. The abnormally high absence rate which did unquestionably exist cannot accordingly be accounted for in this way. The causes are doubtless complex and would involve for elucidation careful study of post-war psychology.

(c) *A Practical Difficulty.*—The first practical step usually taken by firms who want to promote the health and efficiency of their employees is the establishment of a visiting nursing service. In Toronto even this preliminary step is often delayed by difficulties arising out of the fact that employees frequently live at extreme distances from the plant. As a result employers having less than 200 workers feel that the expenditure involved both in cost of car and time spent is out of proportion to the benefits gained. Similarly, where more than 200 workers are employed experience has shown in more than one instance that one visiting nurse is not able to cover the field. This difficulty was of course enhanced during 1919-20 when, as previously stated, absence ran so high.

C. CONDITIONS OBSERVED

I. *Hours of Work*

In the plants visited the forty-eight-hour week is most common. In general, health considerations have not played a prominent part in determining the hours of labour and no instance was noted where hours were decreased because of a health hazard inherent in the industry.

Two firms arranged hours of work to allow Saturday and Sunday off weekly during the summer months. One of these, a factory employing eighty men, arrived at an agreement that hours of work

should be fifty per week and left to the employees the decision as to whether they should work ten hours a day for five days in the week, or nine hours a day for five days and five hours on Saturday morning. They decided in favour of the five-day week and have continued this arrangement into the winter months, with satisfaction to employer and employee. Absence or lateness on Monday has not increased.

Apart from bakeshops and dairies, night work in the plants visited was rare. In one instance the day shift was nine hours with overtime, and the night shift ten hours. In another instance, there were three shifts of eight hours each, beginning at 7 a.m. In this case no variation of consequence was noted in the quantity or quality of output between shifts; but attendance in the shift 11 p.m. to 7 a.m. was so irregular that the length of the shift was reduced one hour. There was little or no improvement in attendance with this arrangement. Finally this night shift was again fixed at eight hours, the cafeteria opened so that a hot meal could be obtained at 11 p.m. before commencing work, and at 3 a.m. This proved to be the most satisfactory arrangement.

No instance was observed where day workers or piece workers received holidays with pay.

II. Medical Service in Industry

(a) Medical Staff

(1) *Physicians.*—One plant has a full-time physician. Nine plants have a total of ten part-time physicians (one of these is a woman). A large number of plants have physicians, or surgeons on call, mainly for accidents.

Some have no systematic arrangement at all but merely send when an accident occurs to the nearest physician available, regardless of his surgical qualifications.

(2) *Nurses.*—Twenty-four plants have nurses. Of these twenty-four, eight have only one nurse for both dispensary and visiting work. Six have both a dispensary nurse and one or more visiting nurses. Ten have dispensary nurse only.

In two plants employing dispensary nurse only, social workers, with industrial experience but with no training in nursing, carry on the visiting.

(3) *Dentists.*—One plant has a part time dentist.

In this plant the employee can if he desires secure X-ray pictures of his teeth, free of charge, for the use of his private dentist.

(b) Medical Equipment and Supplies

(1) *Dispensary Accommodation.*—One plant has five rooms; one plant has four rooms; four plants have three rooms; three plants have two rooms; fifteen plants have one room.

Where one room is provided this serves mainly as a room for dressing wounds; where two rooms, waiting room and dressing room; where three rooms, waiting room, dressing room and examining room.

(2) *Equipment and Supplies.*—Where one room only is provided equipment and supplies do not for the most part exceed the requirements of the Workmen's Compensation Act for Ontario, and it is to be noted that it is chiefly these firms who limit their employment of nurses to a dispensary nurse only. As regards medical service, the only thing done by these firms is to encourage consultation of the dispensary nurse for minor illness.

In all other instances where dispensaries are provided much has been done beyond the requirements of law. In two instances both dispensary accommodation and a nurse doing dispensary and visiting nursing are provided in plants employing considerably less than* three hundred employees. These plants showed other evidences of an appreciation of the value of medical service in industry.

(c). *Medical Supervision*

(1) *Initial Physical Examination.*—Four of the public services require applicants to pass a physical examination before they are engaged. A small number of private plants indicated the desirability of such practice—in most cases following some distressing experience which might have been avoided had physical examination been a condition of employment.

One plant has started physical examination, but as yet without correlation between the employment office and the plant physician. The initial examination is conducted only after the employee has been engaged and is used to advise him as to any treatment or medical supervision necessary, or as to his fitness for the particular job to which he has been assigned.

(2) *Periodic Physical Examination.*—There is no plant where physical examination is conducted periodically or on change of occupation within the plant.

(3) *General Care.*—In a few plants providing a nurse for cases of accident and in all those providing additional medical service, employees are encouraged to make use of the dispensary service when ill. Where numbers of women are employed in two or three instances official provision is made to allow them to rest during indisposition.

* The Workmen's Compensation Act for Ontario provides that for all plants employing from 15-300 persons a first aid kit with specialized equipment shall be provided and shall be in charge of "some suitable person." For plants having more than 300 persons a first aid room with specified equipment shall be provided to be in charge of "a clerk, workman, nurse or other person who has taken a recognized course of study in first aid to the injured."

One firm discovered in one year three employees suffering from tuberculosis, and by judicious supervision, involving education in personal hygiene, light work, and a few minutes' rest and nourishment in the middle of the morning and afternoon, retained them in employment.

III. Sanitation

(a) *Ventilation*.—It is obviously impossible to determine the degree of efficiency of ventilation in factories in the course of a visit. In addition to this, at least half the plants visited were seen in warm weather, when windows could be opened, and this gave no indication of what the situation is in winter. Artificial means of ventilation are common. The determination of their efficiency can only be arrived at by actual test, and this would not necessarily indicate the normal or usual conditions. Ventilation is probably not seriously defective except in the smaller plants of old-type construction and in cases, fairly common in Toronto, where buildings intended for other purposes have been taken for factory use.

Heating in the larger plants is central, and therefore clean and sufficient.

Except where necessitated by the nature of the manufacturing process, e.g., in textile plants and bakeries, no serious attempts to raise the humidity have been observed.

In new plants considerable attention has been paid to effective artificial lighting and the provision of adequate window space for natural lighting. In many cases, however, the loss of light resulting from accumulation of dust on windows is apparently not appreciated. In many small and old buildings provision for lighting, both natural and artificial, is entirely inadequate.

(b) *Sanitary Facilities*

(1) *Drinking Water*.—Individual cups were not observed. Vertical fountains are provided in a number of plants, but the common drinking cup is still very common.

(2) *Lavatories*.—Lavatories and washbasins in new plants show marked improvement in number and construction, but conditions in this respect obtaining in many plants are deplorable. Employers frequently speak of constant difficulty in keeping these facilities in good working condition and moderately clean on account of destructive and filthy habits of a minority of the employees. Where no attempt at cleanliness is made, the situation is greatly aggravated. In comparatively few instances are the recommended standards for number and construction, ordinarily considered the minimum requirements, complied with.

In certain plants where the work is heavy and dirty, or performed in over-heated atmosphere, baths for the use of employees at the end of the day have been provided. The general

experience is that these have been little used, probably mainly because of the fact that no provision is made for change of clothing, and dressing rooms are inadequate.

(3) *Kitchens*.—Kitchens installed in connection with lunch rooms were in all cases observed to be clean and orderly.

(4) *General Cleanliness*.—The most striking thing in this connection is the different conditions obtaining regarding the disposal of waste in plants engaged in the same process of manufacture. Ordinarily conditions in this respect are good, probably from an appreciation of the fire and other accident risks rather than the health hazard. A few instances of extremely filthy conditions were observed.

IV. *Fatigue*

Positive evidence of fatigue can, of course, only be obtained by intensive and detailed investigation. Certain very tentative deductions may, however, be drawn from the attitude of managers to this problem, from such lost time records as are available and from the presence or absence of the obvious measures for combatting fatigue.

(a) *Hours of Work*.—In so far as the expressed opinion of managers could be obtained there seemed to be general agreement that there was no question of fatigue being caused by too long or too strenuous work. It was commonly held that the majority of workers, at any rate those without dependents, were not working up to capacity and, owing to the high wages prevailing, were able to take time off at will. Certainly the absence records of such firms as contributed them showed a very high proportion of absence for minor disabilities, and there is reason to believe that a considerable amount of absence for personal reasons was included here. It is of course impossible to say whether this general slackness which seems to have existed was, as managers and certain others held, the result of high wages, which made lack of industry financially possible or whether, on the other hand, both slackness and the high rate of absence really point to fatigue. It is clear at any rate that the necessity of adjusting hours of work to the capacity of the workers either did not arise or was not recognized.

(b) *Adaptation of the Worker to his Job*.—In any attempt to estimate the extent of the fatigue problem and the degree of its recognition it is necessary to find out what measures are being taken to avoid maladaptation of the worker to his job. Practically, the question resolves itself into an inquiry as to what plants have analysed the requirements of their particular jobs, and adopted systems for estimating the physical and psychological aptitudes of the man.

No firm in Toronto has both systematic job analysis and compulsory medical examination. It is only in the case of the public utility companies that a worker's physical fitness is medically tested

before he is engaged, and here, of course, except in the case of the telephone service, the motive is to protect public safety by exclusion of the unfit worker, and there is little possibility of assigning him a job within his capacity.

One firm has recently completed an analysis of the requirements of its particular jobs. All these are semi-skilled and the qualities required are chiefly psychological with a limited reference to physical strength. Unfortunately at the present time when no new workers are being engaged and staff is being laid off, the analysis is only used for decision as to who shall be retained. It is of interest, however, to note this instance of a practical attempt to correlate the qualities of the worker with the requirements of the job.

(c) *Posture*.—Many obvious errors in posture were observed. The following may be cited:—

Women stand at cardboard-cutting machines. The provision of seats in this case is not practicable without alterations in the type of construction of the machine.

Employees more frequently than not stand when doing lathe work.

Seats in a boot and shoe factory were generally ill-adapted to the requirements of the individuals working at the bench. In some instances employees themselves had made attempts at adjustment by placing blocks under the legs of stools, but in others women sat on chairs which were too low, and had accordingly to keep the arms raised up to, or above, the shoulder level in performing their work.

In the paper box manufacturing, at machines used for cornering boxes, stools were of such height as to make it possible for the individual to see that the side and end of the box were so placed as to make an even corner, but this made it necessary to raise the arms up to, or above, the shoulder level, to hold the box in place. Again, for correction, some alteration in the design of machine would be necessary.

In another plant girls were observed sitting on high stools before a bench, polishing small silver plate articles by hand. Lower seats with elbow rests would have provided some degree of comfort. Employees stated that the process caused pain in the fingers to start with, but that they soon became accustomed to it.

A manufacturer of gramophone records referred to one instance where by a very slight alteration in the position of the records in process of being trimmed the discomfort formerly experienced by the workers owing to uncomfortable posture was prevented.

(d) *Speed*.—This was most noticeable where the carrier* system was in use. Where a number of employees are stationed along the carrier, each with a separate piece of work to perform, the rate of speed is determined largely by the slowest worker. These workers

*The carrier system is a system whereby a power-driven machine conveys the article in process of manufacture from point to point.

are usually employed at piece-work rates, so that any one individual retarding speed unduly finds himself in difficulty with other employees. Where only one individual was employed on the carrier system, the rate of speed was observed to be higher, and was not capable of adjustment by the operator. Opportunity to measure the extent of spoiled work, due to what appeared to be excessive speed, is presented here.

(e) *Complicated Motions*.—Chocolate dipping offers an instance of work involving this cause of fatigue. The piece work system is in use, so that speed also is a factor here. One employee with long experience referred to the frequency with which certain movements involved in this process became a mannerism.

(f) *Concentration and Precision*.—One plant referred to their experience that girl applicants for employment who had previously been working in a certain department of a nearby plant (where very fine work is done with small parts and large numbers of parts are handled daily) presented an unhealthy appearance, and further that such of them as were engaged did not turn out work of average quality and quantity.

(g) *Noise and Vibration*.—It is the common view of employers that the workers get accustomed to these and this was borne out in some cases by the statements of the employees also. In one instance, however, the social worker in a plant considered that the increase in lost time of one department over all others was occasioned by the fact that the girls were working in close proximity to certain processes involving noise and vibration.

(h) *Preventive Measures Observed*

(1) *Provision of Glasses*.—Without special guidance, certain efforts have been made by employers to overcome the effect on employees of hazards inherent in certain processes. One plant employing girls required to do fine work involving eye-strain had all such employees examined by an oculist, and glasses, suitable for wear while at work only, provided free of charge. The test of the value of this experiment was to be determined by the use which was made of these glasses by the employees. After four months they are still being worn and employees state that they are benefited by them. There are no detailed records regarding production, but it is considered by the manager that at least in the case of certain employees, who, previous to the provision of glasses, frequently lost time, or were partially incapacitated from eye-strain, production has been considerably increased.

(2) *Rest Periods*.—In three plants of those visited rest periods have been inaugurated. One, where the carrier system is in use, provides five minutes in every hour; another provides ten minutes in the middle of the forenoon and again in the afternoon, at which latter time tea and biscuits are served. In the third instance, a ten minutes' period in the middle of the after-

noon is devoted by a section of the office staff to physical drill under a capable instructor. All express the opinion that the provision is beneficial.

V. Occupational Diseases

Data on the extent to which occupational disease is a problem in Toronto is exceedingly scarce. No idea of its prevalence can be obtained from the mortality statistics compiled by the Registrar General of Ontario, since while undertakers are encouraged to state the occupation of the deceased on death certificates there is at present no approved list of occupations to guide the nomenclature adopted, and it is obvious that no information of any value can be derived from this source.

The statements of private practitioners, industrial physicians, and clinicians in the wards and outpatient clinics of city hospitals all seem to indicate that specific occupational disease is not a problem in Toronto, and this is borne out by the experience of the Workmen's Compensation Board. On the other hand, however, even in the course of the very general survey of a limited number of plants made for the purpose of this report, instances of specific occupational disease were encountered in three industrial processes. The diseases concerned were chocolate eczema, zinc poisoning and sepsis developing in wounds received in the cutting-rooms of abattoirs.

In all these cases the disease and its occupational origin were of course clearly marked. The existence of less easily recognized forms of disease could not be judged simply in the course of visits to the plant. Similarly, owing either to the ignorance or diffidence of the employers or employees questioned, it was frequently impossible to find out with regard to the different processes observed whether dangerous substances likely to cause disease were in use.

As regards the preventive measures observed, in many cases exhaust systems have been provided for the expulsion of dust produced in the process of manufacture. In at least eight cases, however, that these were not efficient was shown by the presence of dust on the worker and surrounding objects and at times in the air. In seven of the plants visited no attempt whatever had been made to remove dust.

On the whole we are forced to the conclusion that there is general lack of recognition of the occupational factor in disease. It seems incredible that the position in Toronto should differ so widely from common experience in the States, where occupational disease is recognized as a general problem. This is evidenced by, among other things, the existence of special occupational disease sections in hospitals, fed from industrial clinics, and by the fact that 650 different types of such diseases have been identified.

VI. Welfare

(a) Cafeteria or other system of serving hot refreshments have been provided in eighteen plants, and these exceed the requirements of the *Factory and Workshops' Act for Ontario*.

(b) *Recreation or Rest Rooms.*—Are provided in nine plants, are well equipped and, judging by the extent to which they are used, are appreciated by the employees.

(c) *Dressing Rooms and Lockers.*—In a few instances these are adequate, but in the majority of cases where they are provided they are set up in the corner of the room in which the employee works. In most small plants no provision whatever is made, except where necessitated by the Factory Act requiring a dressing room where 35 or more females are employed.

NOTE 1.—One-third of the total employees in the plants visited were women.

NOTE 2.—No account has been taken of accident hazard since extensive work is being done by the Accident Prevention Associations, authorized under the Workmen's Compensation Act for Ontario, and by the Ontario Safety League.

III. LOST TIME FROM SICKNESS

A. SCOPE AND METHOD OF THE REPORT

An attempt was made to get information on lost time from sickness from various plants in different industries. A record card based on one drawn up by the United States Public Health Service was adopted and was recommended to such firms as had not suitable forms already in use. Tabulation forms were also provided to be based either on the committee's card or on the firm's as might be arranged. From the outset there was considerable difficulty in securing the desired information and eventually it was found that the number of firms who were able to maintain satisfactory co-operation in the way of verifying sickness and submitting returns were too few to permit of any significant data being collected. The investigation has accordingly had to be limited almost entirely to the experience of benefit associations and trade unions.

B. DIFFICULTIES ENCOUNTERED

1. Managers have already considerable work to do in making up Government returns and in many cases have not adequate clerical staff for additional work of the same kind.

II. Fairly frequently employers expressed the view that the information desired by the committee would be of value to themselves and referred the matter to the subordinates most directly concerned, who reported considerable difficulty of an intangible nature in making up the reports.

III. There is lack of means of verification of sickness. The only way to obtain accurate information as to the amount of lost time from sickness in any industry is through follow-up work by visiting nurses. This is necessary both to distinguish between lost time due to sickness and lost time due to other causes, and to determine the different types

of sickness. Remarks under the heading "Medical Service in Industry" show how comparatively few are the instances in which visiting nursing service is available for this purpose. In many plants a committee of workers, more generally organized in connection with a benefit association, is used to distinguish between the lost time due to sickness and that due to other causes. Some smaller plants rely on friends of absent workers within the plant to obtain this information, and feel that reasonably accurate reports are made. For the purposes of this report it was considered that the visiting nurse was indispensable if accurate figures were to be obtained.

IV. There is lack of uniformity of practice in the visiting of absentees.

(a) In some plants absentees are visited only after a certain period of employment, varying from one month to two years; others make no distinction in this respect.

(b) In some plants absentees are visited after varying periods of absence—sometimes one, two, three, or four days, with this exception, that when an employee is reported ill he is visited at once.

(c) When, as frequently occurs, absence is too high to permit of all being visited, only the older or more highly skilled are served, or in some cases only members of benefit societies.

(d) In some cases, even where visiting is done, no record is kept.

(e) Where record is kept, the number of days constituting a week varies; some count seven days a week, others count work days only.

(f) In some cases sickness is recorded from the first day, in others only from the day of verification.

It will be seen from the above that it has been impossible to compare any figures which are available at present, and such as were obtainable do not truly represent sickness experience.

C. STATISTICS AND CHARTS*

I. Lost Time in Benefit Associations in Toronto for the Year 1919

(a) *The total lost time from sickness in days per employee in certain plants where all employees belong to the Benefit Association*

Plant	Average No. employees	Lost time from sickness per man per year	Includes all cases of sickness with duration in excess of
Municipal Street Cleaning Dept...	436	7.09	24 hours
Municipal Parks Dept.....	245	2.6	
Municipal Works Dept.....	1,065	4.7	
Municipal Police Dept.	569	5.0	
A Cycle Company.	326	3.2	3 days
A Rubber Company.	945	3.1	
A Rubber Company.	1,250	2.9	7 days
A Foundry	241	7.7	

* The sickness experience of certain Toronto firms recorded in the following pages cannot be taken as indicative of national experience. There is reason to believe that in certain other districts of Canada the figures might not work out so favourably.

(b) *The total lost time from sickness in days per member of Benefit Association in certain plants where membership of the association is not universal*

Plant	Average No. members	Lost time from sickness per man per year	Includes all cases of sickness with duration in excess of
A Packing Company.....	675	2.9	7 days
A Packing Company.....	1,100	4.8	3 days
A Packing Company.....	950	3.9	4 days
A Departmental Store.....	3,297	2.5	3 days

It will be noted that the lost time from sickness here recorded as experienced by certain groups of industrial workers is in general lower than the average experience as recorded by the Metropolitan Life Insurance Company's surveys, which was 6.9, and considerably lower than the estimate of the American Association for Labour Legislation for industrial workers for the United States, which was 8.5.

(c) *Charts showing lost time from sickness in Benefit Associations with comparable rules*

NOTES.—Charts 1, 2, and 3 represent the experience in sickness as determined from benefit association records in plants where all employees are eligible for benefit, and these plants are grouped on the charts according as the rules of the association make comparison at all possible.

Lost time from sickness per employee constitutes the vertical co-ordinate, and months of the year 1919 constitute the horizontal co-ordinate.

In the plants indicated on chart 1, all employees are of the male sex; in the plants indicated on chart 2 the proportion of male and female to the total is the same; in the plants indicated on chart 3, the rubber company employs two-thirds male and one-third female, the foundry employs only males.

No accurate record of the age of the members of the benefit association was available.

The greatest variation from month to month in the number of employees was 10 per cent from the median. In most cases it was much less than this, except in the case of the foundry, chart 3, where the number of employees was reduced by 90 per cent for the months of May, June and July.

In chart 1, the most striking features are that as regards the police, a specially picked force, the trend of lost time is higher than that of the other public services; that the fluctuations are less extreme;

CHART I

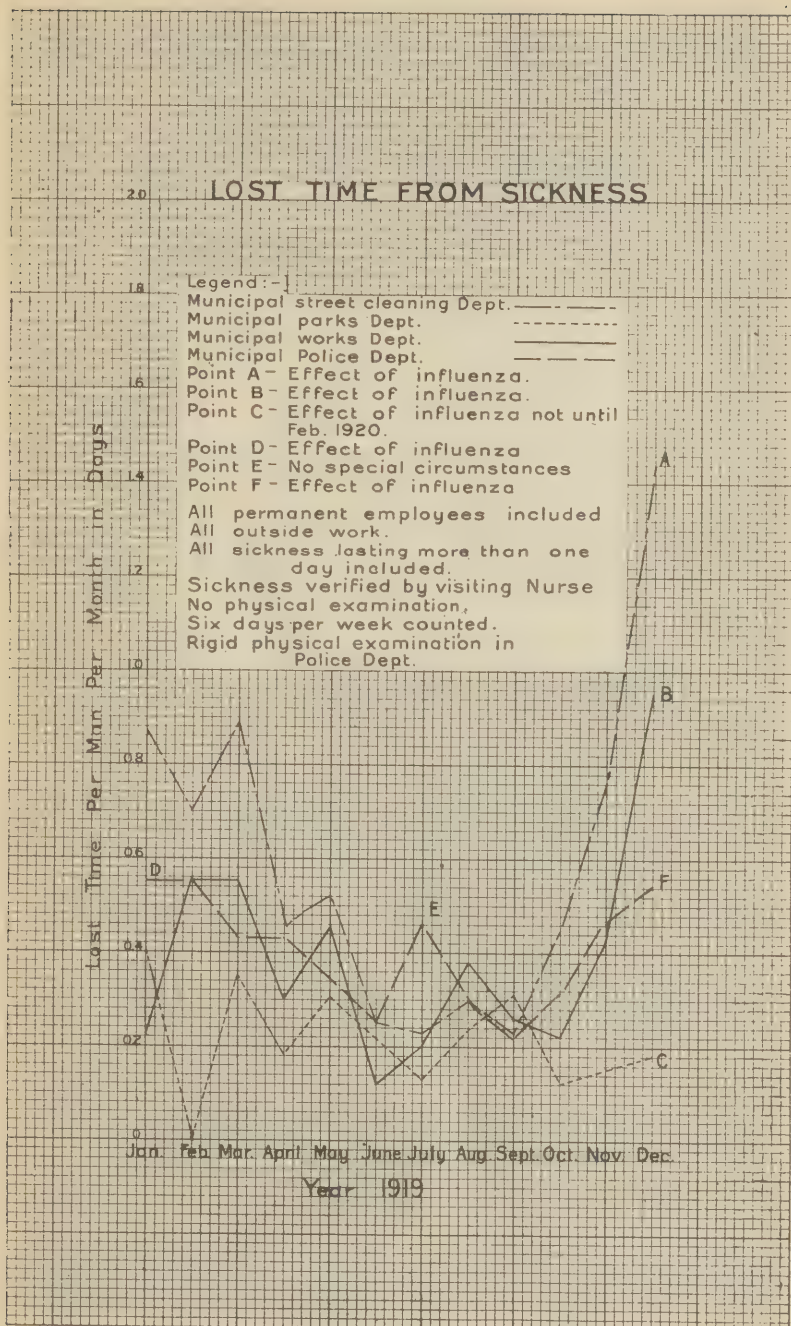


CHART II

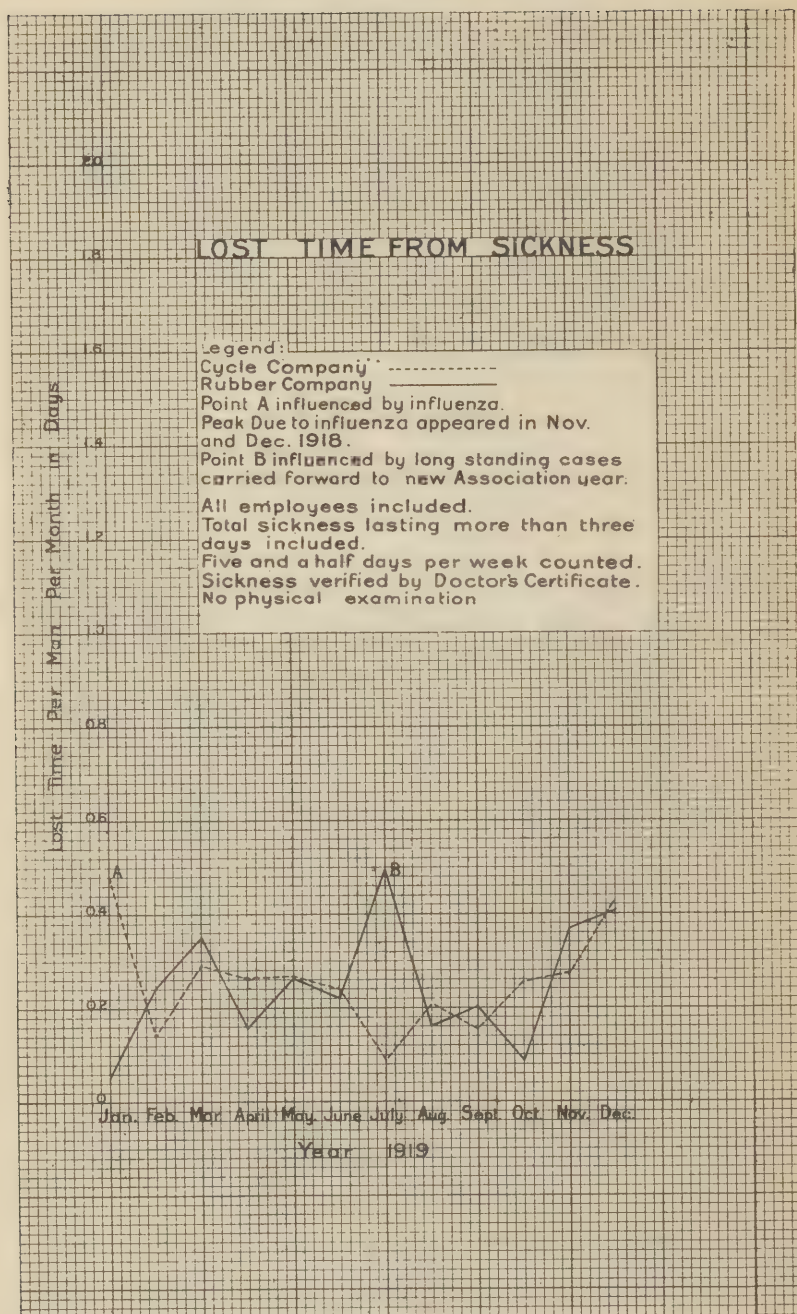


CHART III

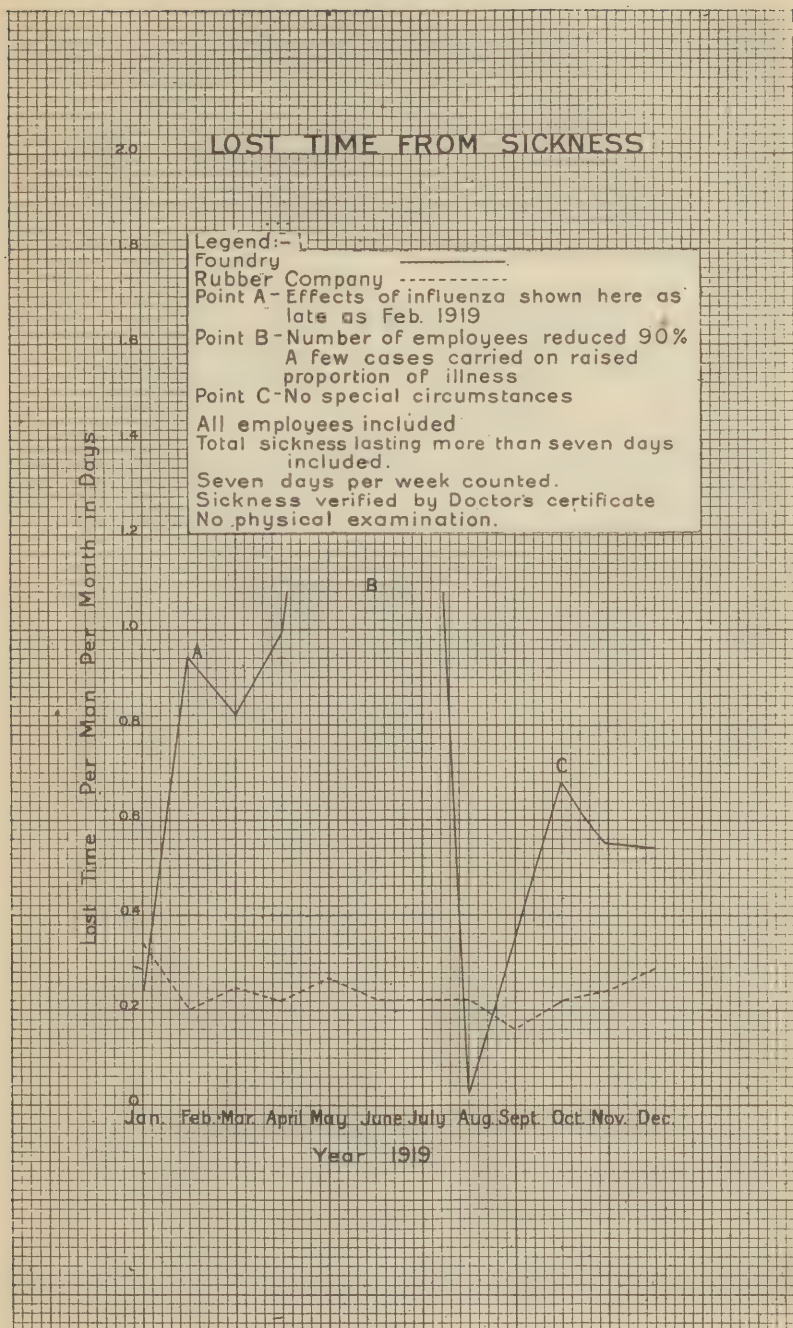
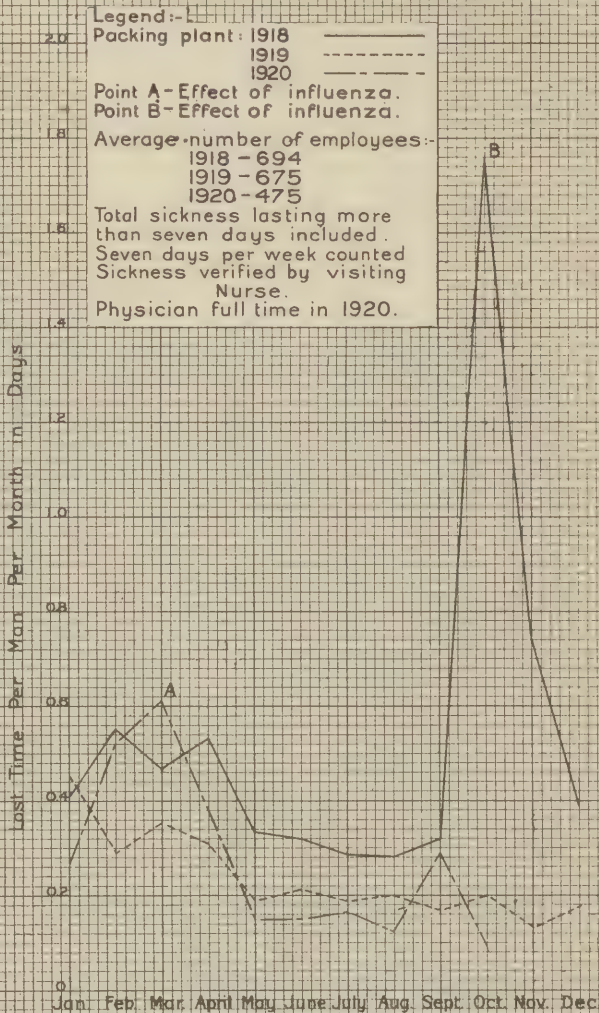


CHART IV

LOST TIME FROM SICKNESS



and that the usual decrease during the summer months did not occur. The explanation of the general increase may lie in the fact that work continues in all weathers and that both hours and meals are irregular.

The curves in chart 1 show the same general variation in lost time per man from month to month, with a consistently higher loss of time in street-cleaning* than in works, and in works than in parks.

Charts 2 and 3 of themselves present no special features but compared with one another and with chart 1, although sickness under seven days is excluded in chart 3 and that under three days excluded in chart 2, the same general sickness experience is recorded. The evidence of all three charts accordingly indicates that short period sickness is not a considerable factor.

II. Progress made by a Toronto Packing Company in Reducing Lost Time from Sickness

Chart 4 shows lost time from sickness in 1918, 1919, and 1920.

The firm employs a physician and three nurses.

In 1918 the average lost time from sickness per man per year was 6.5 days. In 1919 it was reduced to 2.92, and this is also the average for 1920 up to the end of October, despite the fact that influenza occurred during the early months of the year and that there was little influenza in this plant during 1919.

III. Causes of Absence in One Toronto Firm

One firm employed a physician to visit all absentees during March, April, and May, 1920. It was found that causes of absence were as follows:—

55 per cent of cases of absence was caused by employee's illness.

10.5 per cent of cases of absence was caused by illness in his family.

34.5 per cent of cases of absence was caused by other causes.

IV. CHANGES DURING THE YEAR—PROSPECTS

A. Changes.—The extent to which the foregoing information may be taken as representative of working conditions in Toronto is to some degree modified by the fact that the period during which the major part of the investigation was conducted—namely, the first half of 1920—was abnormal. Since the summer the state of the labour market has completely changed. Last winter work was very plentiful and labour relatively scarce. Employers could not reckon the usual proportion of their employees as permanent or regular; they were unable to exercise selection in the choice of their staff and in many

* Contributed to by type of work and proportion of physical disability present on employment.

instances were forced to employ workers who for one reason or another were known to be unsuited to the work. At present the position is the reverse. Staffs are being almost universally reduced and it is to be noted that there is a marked decrease not only in absence for personal reasons but also in absence for minor disabilities. In some instances wages have already fallen.

B. Prospects.—The effects of the changed conditions on the prospects of the extension of industrial hygiene are contradictory. On the one hand some plants have partially discontinued their medical service, and others delayed its introduction. On the other hand the greater stability of labour affords better opportunity for the valuation of attendance and sickness records and for care in placing each man at the work for which he is best suited.

As regards recognition of the value of industrial hygiene, there are distinct signs of progress and certain employers may be looked upon as forming a nucleus likely to apply principles of hygiene to their working conditions. Among others the following may be cited:—

An Agricultural Implements Manufacturing Company.—This company has an extensive plan for medical service throughout their plants and it is interesting to note that before deciding definitely upon the lines of development they have sent their medical officer to the States to get information as to what is being done there. This medical officer has just been appointed and is of high standing in both medicine and surgery. He will be employed full time and among his duties will be inspection of the shops with regard to sanitation and hygienic conditions.

A Packing Company.—Since September the physician previously employed on a part-time basis has been put on a full-time basis and the firm has introduced the system of medical examination. It is used as an opportunity for giving advice to employees on preventive measures and on any special types of work which they should avoid. During the past year this firm has largely extended its system of records and has incorporated in its new forms the card recommended by the committee.

A Tire Manufacturing Company.—Before the change in the position this autumn which altered their plans this company had in contemplation the appointment of a full-time physician and had begun the extension of their dispensary accommodation. This was planned to include supplies and equipment sufficient to permit of treatment of all but the most serious cases of accident. They had also intended to enlarge their lunch room. Apart from medical service, the firm have instituted an effective system for the training of new employees for their particular jobs.

Industrial Hygiene Division.—During the year the Industrial Hygiene Division of the Provincial Board of Health has been established. This body should be of assistance to such firms as the above who are already interested in industrial hygiene and should also help to convince others of its value.

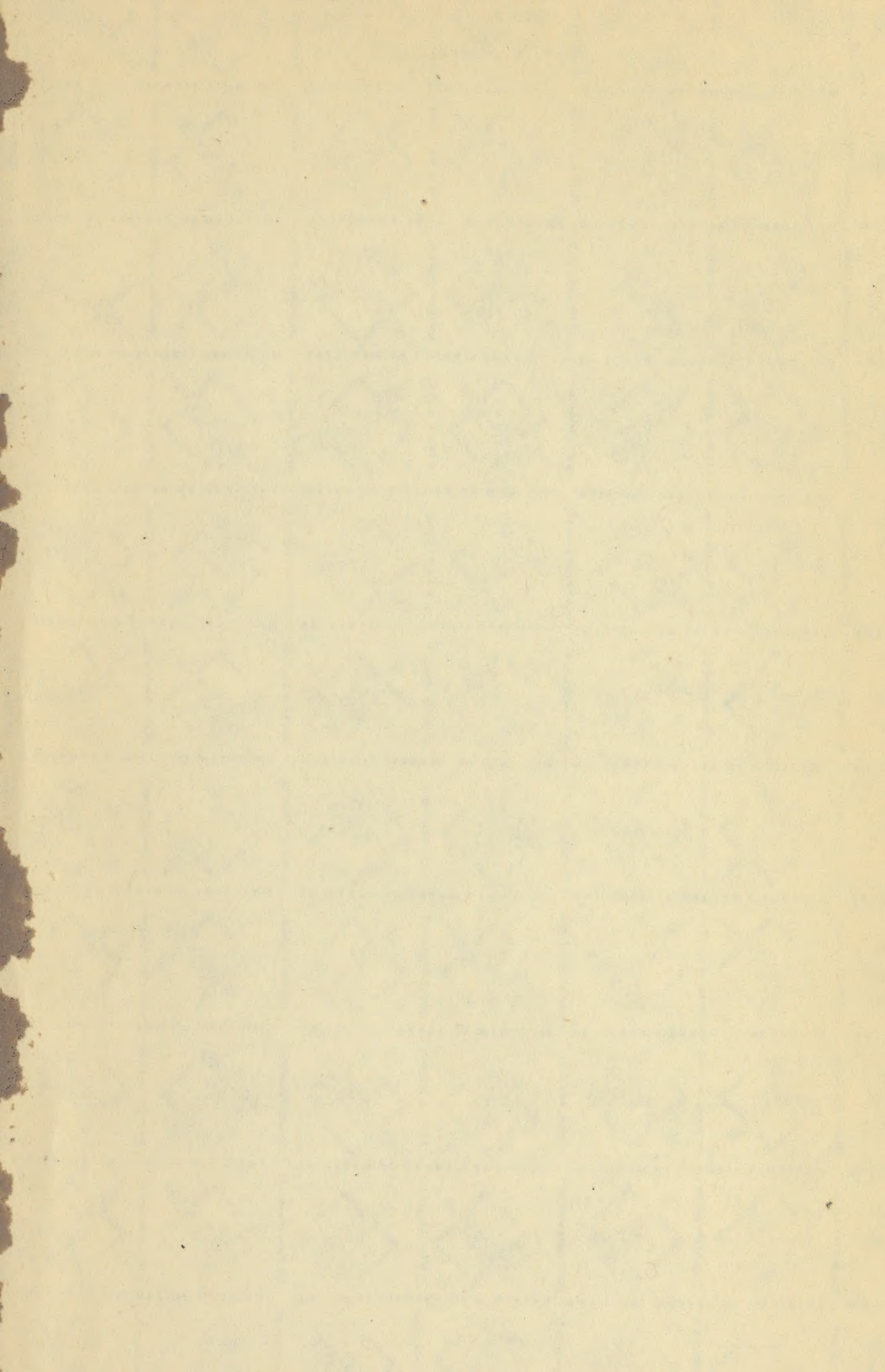
V. RECOMMENDATIONS

A. It is felt that at this stage the best way for the committee to gain the confidence of industry would be to conduct some specific piece of research from which definite conclusions could be drawn on some concrete problem however small. Most valuably of course the problem chosen should be one common to as many industries as possible. As a tentative suggestion it is thought that investigation in some one process of output in relation either to speed or to posture might be a suitable problem.

At present as far as Toronto is concerned the chief plants have been visited and the whole subject of industrial hygiene presented and it is felt that it would be unfortunate to continue investigations of a general character and propaganda without at the same time endeavouring to obtain some definite solution of a practical problem.

B. In addition to this need of conducting some definite research it is felt that the whole position as regards occupational disease calls for investigation. This should include research into the effects of substances in use with recommendations as to the best preventive measures.

DECEMBER, 1920.





Gaylord 

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